Compaq StorageWorks™

REPLACING AN EXTERNAL CACHE BATTERY (ECB)

Open Card Completely Before Beginning Installation Procedures

European Union Notice

NOTICE

About This Card

The HSG60, HSG80, HSJ80, HSZ70, and HSZ80 subsystems all require ECBs. This document contains instructions for replacing the ECB.

NOTE: For instructions on upgrading a single-controller configuration to a dual-redundant controller configuration, see the appropriate array controller user guide or maintenance and service guide.
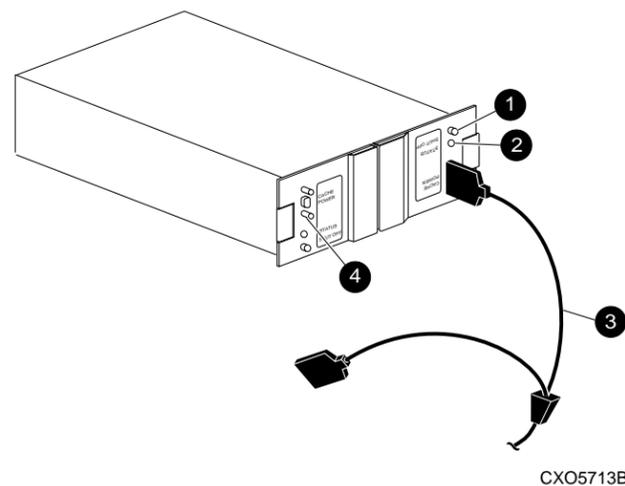
General Information

The type of ECB used depends upon the controller enclosure type.

Figure 1 and Figure 2 provide general information about the cache modules used with many Compaq StorageWorks controller enclosures.

❶ Battery disable switch
❷ Status LED
❸ ECB Y-cable

CXO5715B
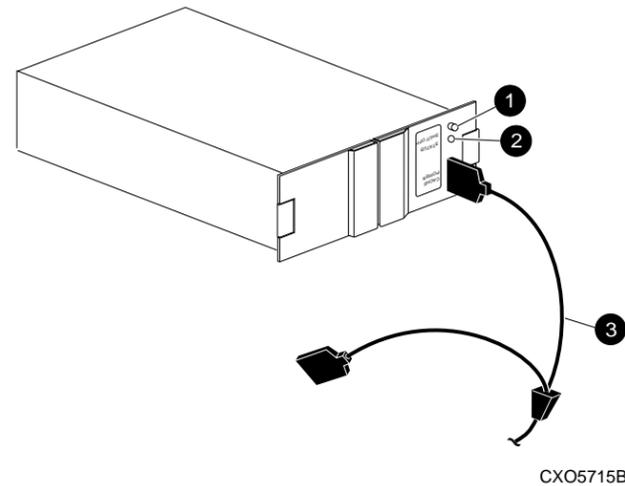
Figure 1. Single ECB for single-controller configurations

❶ Battery disable switch
❷ Status LED
❸ ECB Y-cable
❹ Faceplate and controls for second battery

CXO5713B

Figure 2. Dual ECB for dual-redundant controller configurations

Model 2100 and 2200 controller enclosures use a different type of ECB that does not require an ECB Y-cable (see Figure 3). These enclosures contain four ECB bays. Two bays support Cache A (bays A1 and A2) and two bays support Cache B (bays B1 and B2)—see this relationship in Figure 4.
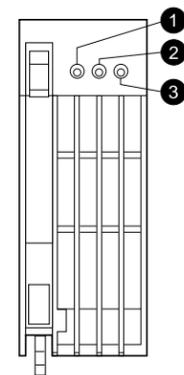
❶ ECB charged LED
❷ ECB charging LED
❸ ECB fault LED

CXO6358A

Figure 3. ECB status LEDs

Front View

CXO6864A

Rear View

CXO5608B
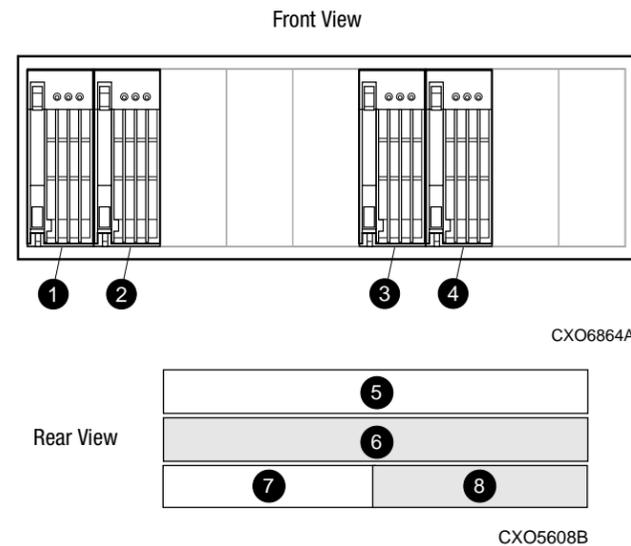
❶ B1 supports cache B	❺ Controller A
❷ B2 supports cache B	❻ Controller B
❸ A2 supports cache A	❼ Cache A
❹ A1 supports cache A	❽ Cache B

Figure 4. ECB and cache module locations in a Model 2100 and 2200 enclosure

IMPORTANT: When replacing an ECB (see Figure 5), match the vacant ECB bay with the cache module it supports. This bay will always be next to the failed ECB.
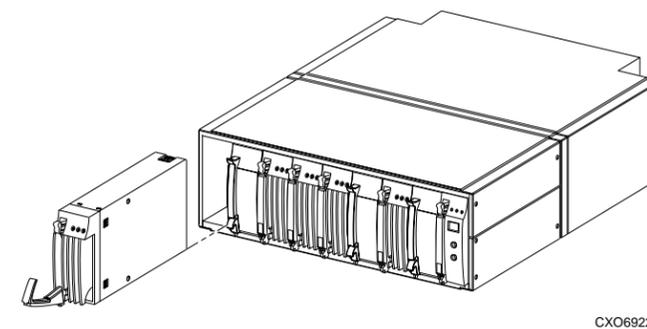

CXO6922B

Figure 5. Removing an ECB that supports cache module B in a Model 2100 and 2200 enclosure

⚠ **WARNING:** The ECB is a sealed, rechargeable, lead acid battery that must be recycled or disposed of properly according to local regulations or policies after replacement. *Do not* incinerate the battery. The ECB displays the following label:

Pb

HSZ70 Single-Controller Configurations

Use the following steps and Figure 1 or Figure 2 to replace an ECB:

1. If a controller is operating, connect a PC or terminal to the controller maintenance port supporting the old ECB cache module.

   If the controller is not operating, go to step 3.

2. Shut down "this controller" with the following command:

   SHUTDOWN THIS_CONTROLLER

   NOTE: After the controller shuts down, the reset button ❶ and the first three light emiting diodes (LEDs) ❷ turn ON (see Figure 6). This might take several minutes to happen, depending on the amount of data that needs to be flushed from the cache module.

   Proceed only after the reset button stops FLASHING and remains ON.
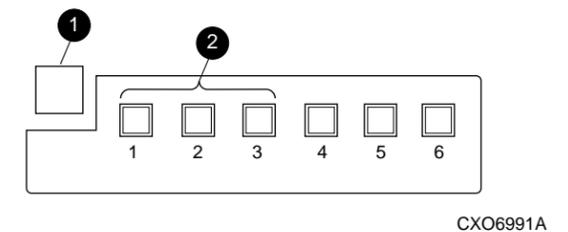
CXO6991A

Figure 6. Controller reset button and first three LEDs

3. Turn OFF subsystem power.

   NOTE: If an empty bay is not available, place the replacement ECB on top of the enclosure.

4. Insert the replacement ECB into an appropriate bay or near the ECB being removed.

⚠ **CAUTION:** The ECB Y-cable has a 12-volt and a 5-volt pin. Improper handling or misalignment when connecting or disconnecting could cause these pins to contact ground, resulting in cache module damage.

5. Connect the open end of the ECB Y-cable to the replacement ECB.

6. Turn ON subsystem power.

   The controller automatically restarts.

⚠ **CAUTION:** Do *not* disconnect the old ECB Y-cable until the replacement ECB is fully charged. If the replacement ECB status LED is:
   ■ ON, the ECB is fully charged.
   ■ FLASHING, the ECB is charging.
   The subsystem can operate regardless of the old ECB status, but do *not* disconnect the old ECB until the replacement ECB is fully charged.

7. Once the replacement ECB status LED turns ON, disconnect the ECB Y-cable from the old ECB.

8. Remove the old ECB and place the ECB in an antistatic bag or on a grounded antistatic mat.

9. If the replacement ECB was not placed in an available bay, insert the ECB into the vacant bay of the old ECB.

10. If a PC or terminal was connected in step 1, disconnect the cable from the controller maintenance port.

HSZ70 Dual-Redundant Controller Configurations

Use the following steps and Figure 1 or Figure 2 to replace an ECB:

1. Connect a PC or terminal to the maintenance port of the controller that has the operational ECB.

   The controller connected to the PC or terminal becomes "this controller"; the controller for the ECB being removed becomes the "other controller."

2. Disable failover and take the controllers out of dual-redundant configuration with one of the following commands:

   SET NOFAILOVER
   or
   SET NOMULTIBUS_FAILOVER

3. Start the field replacement utility (FRUTIL) with the following command:

   RUN FRUTIL

4. Enter **3**, *Replace other cache module battery.*

5. Enter **Y**(es) to confirm the intent to replace the ECB.

⚠ **CAUTION:** Do *not* disconnect the old ECB until the replacement ECB is fully charged. If the replacement ECB status LED is:
■ ON, the ECB is fully charged.
■ FLASHING, the ECB is charging.
The subsystem can operate regardless of the old ECB status, but do *not* disconnect the old ECB until the replacement ECB is fully charged.

The ECB Y-cable has a 12-volt and a 5-volt pin. Improper handling or misalignment when connecting or disconnecting might cause these pins to contact ground, resulting in cache module damage.

NOTE: If an empty bay is not available, place the replacement ECB on top of the rack (cabinet) or enclosure until the defective ECB is removed.

6. Insert the replacement ECB into an appropriate bay or near the ECB being removed.

7. Connect the open end of the ECB Y-cable to the replacement ECB and tighten the retaining screws.

8. Press **Enter/Return**.

9. Restart the "other controller" with the following command:

   RESTART OTHER_CONTROLLER

10. Reestablish the dual-redundant configuration with one of the following commands:

    SET FAILOVER COPY=THIS_CONTROLLER
    or
    SET MULTIBUS_FAILOVER COPY=THIS_CONTROLLER

    This command copies the subsystem configuration from "this controller" to the "other controller."

11. Wait until "this controller" reports that the "other controller" restarted, then restart "this controller" with the following command:

    RESTART THIS_CONTROLLER

12. Once the replacement ECB status LED turns ON, disconnect the ECB Y-cable from the old ECB.

13. For dual ECB replacement:

    ■ If the "other controller" cache module will be connected to the replacement dual ECB, connect the PC or terminal to the "other controller" maintenance port.

    The connected controller now becomes "this controller."

    ■ Repeat step 2 through step 12.

14. Place the old ECB in an antistatic bag or on a grounded antistatic mat.

15. Disconnect the PC or terminal from the controller maintenance port.

HSG60, HSG80, HSJ80 and HSZ80 Controller Configurations

Use the following steps and Figure 1 through Figure 5, as appropriate, to replace an ECB in single-controller and dual-redundant controller configurations:

1. Connect a PC or terminal to the maintenance port of the controller that has the defective ECB.

   The controller connected to the PC or terminal becomes "this controller."

2. For Model 2100 and 2200 enclosures, enter the following command to verify that system time is set:

   SHOW THIS_CONTROLLER FULL

   NOTE: Step 3 is optional for HSJ80 controllers.

3. [HSG60, HSG80 and HSZ80 only] If system time is not set or current, enter current data using the following command:

   SET THIS_CONTROLLER TIME=*dd-mmm-yyyy:hh:mm:ss*

IMPORTANT: An internal clock monitors the life of the ECB battery. This clock *must* be reset after replacing an ECB.

4. Start FRUTIL with the following command:

   RUN FRUTIL

5. For Model 2100 and 2200 enclosures only:

   a. Follow on-screen instructions to replace the ECB.

⚠ **CAUTION:** Make sure to install the replacement ECB in a bay that supports the same cache module as the current ECB being removed (see Figure 4).

Remove the blank bezel from this replacement bay and reinstall the blank bezel in the bay vacated by the current ECB. Failure to reinstall the blank bezel might cause an overtemperature condition and damage the enclosure.

NOTE: Install a Battery Service Label on the replacement ECB prior to installing it in the enclosure. This label indicates the installation date (MM/YY) for the replacement ECB.

   b. Install a Battery Service Label on the replacement ECB as described by the *Compaq StorageWorks ECB Battery Service Label Placement* installation card.

   c. Remove the blank bezel from the appropriate bay and install the replacement ECB.

IMPORTANT: Do *not* remove the old ECB until the ECB charged LED on the replacement ECB turns ON (see Figure 3, ❶).

   d. Remove the old ECB and install the blank bezel in this bay.

6. For other enclosures:

⚠ **CAUTION:** Make sure that at least one ECB is connected to the ECB Y-cable at all times during this procedure. Otherwise, cache memory data is not protected and is subject to loss.

The ECB Y-cable has a 12-volt and a 5-volt pin. Improper handling or misalignment when connecting or disconnecting might cause these pins to contact ground, resulting in cache module damage.

   a. Follow on-screen instructions concerning availability and replacement questions for the ECB.

NOTE: If an empty bay is not available, place the replacement ECB on top of the enclosure or at the bottom of the rack.

   b. Insert the replacement ECB into an appropriate bay or near the ECB being removed.

   c. Follow on-screen instructions to connect the ECB.

   d. Disconnect the ECB Y-cable from the old ECB and press **Enter/Return**.

IMPORTANT: Wait for FRUTIL to terminate.

   e. For single ECB replacement:

      1) Remove the old ECB and place the ECB in an antistatic bag or on a grounded antistatic mat.

      2) If the replacement ECB was not placed within an available bay, install the ECB into the vacant bay of the old ECB.

   f. For dual ECB replacement:

      1) If the other cache module is also to be connected to the new dual ECB, connect the PC or terminal to the "other controller" maintenance port.

      2) The connected controller now becomes "this controller."

      3) Repeat step 4 through step 6.

7. Disconnect the PC or terminal from the controller maintenance port.

This completes the hardware installation.